File Permissions in Linux

Project Description

This assignment explores file and directory permissions utilizing the Linux command line. System administrators are able to assign read, write, and execute permissions for users depending on their desired level of access.

Check File and Directory Details

```
researcher2@5ecc2459a932:~$ cd projects
researcher2@5ecc2459a932:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Apr 21 23:26 .
drwxr-xr-x 3 researcher2 research_team 4096 Apr 22 00:55 ..
-rw--w---- 1 researcher2 research_team   46 Apr 21 23:26 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Apr 21 23:26 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Apr 21 23:26 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Apr 21 23:26 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_t.txt
researcher2@5ecc2459a932:~/projects$
```

Describe the Permissions String

File permissions are designated on three levels for three different categories. The first is users (u), the second is group (g), and the third is other (o). The three levels of permissions are read (r), write (w), and execute (x). These are arranged into a ten digit string for each file or directory.

Starting digit: - for a file, d for directory
Digits 2 - 4: - for lack of permission, r for read, w for write, x for execute for the user
Digits 5 - 7: - for lack of permission, r for read, w for write, x for execute for the group
Digits 8 - 10: - for lack of permission, r for read, w for write, x for execute for others

Change File Permissions

```
researcher2@5ecc2459a932:~/projects$ chmod o-w project_k.txt
researcher2@5ecc2459a932:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Apr 21 23:26 .
drwxr-xr-x 3 researcher2 research_team 4096 Apr 22 00:55 ..
-rw--w---- 1 researcher2 research_team   46 Apr 21 23:26 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Apr 21 23:26 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Apr 21 23:26 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_t.txt
researcher2@5ecc2459a932:~/projects$
```

Change File Permissions On A Hidden File

```
researcher2@5ecc2459a932:~/projects$ chmod 440 .project_x.txt
researcher2@5ecc2459a932:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Apr 21 23:26 .
drwxr-xr-x 3 researcher2 research_team 4096 Apr 22 00:55 ..
-r--r----- 1 researcher2 research_team   46 Apr 21 23:26 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Apr 21 23:26 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Apr 21 23:26 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_t.txt
researcher2@5ecc2459a932:~/projects$
```

Change Directory Permissions

```
researcher2@5ecc2459a932:~/projects$ chmod 700 drafts
researcher2@5ecc2459a932:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Apr 21 23:26 .
drwxr-xr-x 3 researcher2 research_team 4096 Apr 22 00:55 ..
-r--r----- 1 researcher2 research_team   46 Apr 21 23:26 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Apr 21 23:26 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Apr 21 23:26 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Apr 21 23:26 project_t.txt
researcher2@5ecc2459a932:~/projects$
```

Summary

I utilized Linux numeric mode to edit permissions for files and directories, and repeatedly listed the projects directory contents again to verify that changes were made correctly.